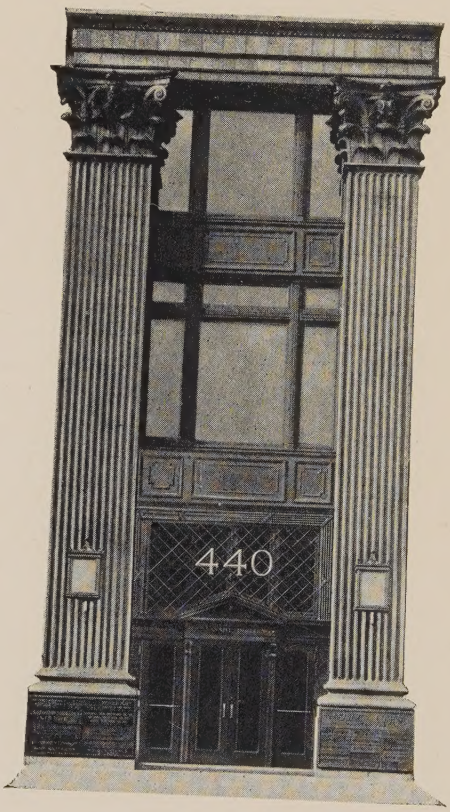
THE MANUSCRIPT

A GUIDE FOR ITS PREPARATION

Presented to Doyle L.

Green

THE MANUSCRIPT



Fourth Avenue at Thirtieth Street

THE MANUSCRIPT

A GUIDE FOR ITS PREPARATION

TO WHICH IS ADDED
A BRIEF DESCRIPTION OF THE
MANUFACTURE OF THE BOOK

THIRD PRINTING, REVISED

JOHN WILEY & SONS, INC.
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1927

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BROOKLYN, NEW YORK

PREFACE

It has been our object, in preparing this booklet, to bring together and offer to the prospective author such suggestions as we believe will be helpful in the preparation of a manuscript for the press. We have supplemented this material with a brief statement of certain facts concerning the manufacture of books.

There are many details of workmanship and arrangement which even the experienced writer may overlook unless they are brought to his attention at the proper time. We believe that a reading of the following pages, in which these details are briefly reviewed, will in many cases enable the author to produce a more attractive book, eliminate vexatious delays, and reduce the expense of author's corrections.

We have not attempted, within the narrow limits of this booklet, to lay down rules for English Composition, Grammar, or Punctuation. Readers who are especially interested in these matters are referred to T. A. Rickard's "Technical Writing," a small volume embodying the results of much editorial experience and intended for the use of those who write on technical subjects.

Practically all of the material contained in this booklet was contributed by Mr. Samuel E. Norris, Secretary of John Wiley & Sons, Inc., who has for many years been responsible for the manufacture of our books. We take this opportunity to express our deep appreciation of his untiring efforts in maintaining a standard of bookmaking which is in keeping with the character of the Wiley publications.

John Wiley & Sons, Inc.

New York, December, 1923.

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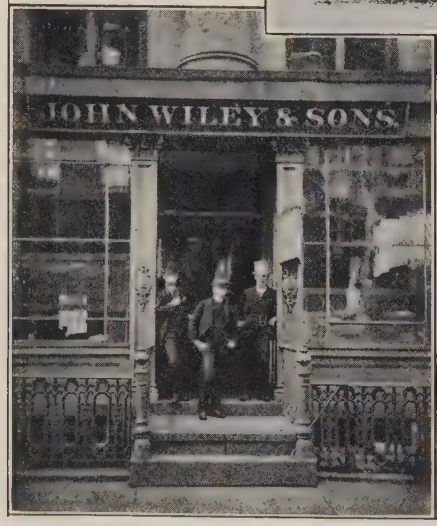
At Left—Charles Wiley's office at 3 Wall Street, New York City, over a century ago, was in the second building from the right in this old lithograph. (Illustration from Lanier's "A Century of Banking in New York," through the courtesy of the publishers, George H Doran Company.)

At Right—John Wiley's store and office in the 50's, at 167 Broadway, New York City. The name will be noted in the lower right-hand corner of the large building.



At Left—Wiley's location in the 80's in the old Mercantile Library Building, at 15 Astor Place, New York City.

At Left—Present location of the shipping department and storeroom of John Wiley & Sons, Inc., occupying the fourth floor at 60 Broadway, Brooklyn, New York City.

At Right—Present location of the offices of John Wiley & Sons, Inc., occupying the entire sixth floor, 440 Fourth Avenue, at Thirtieth Street, New York City.

INTRODUCTION

THE publishing house of Wiley was founded in New York City, according to the best records available, in the year 1807. The founder was Charles Wiley, son of Major John Wiley, a Revolutionary soldier and patriot. Charles Wiley's son, John, whose name the corporation now bears, entered the employ of his father at the age of sixteen and afterward became the head of the business. Later, he in turn was ably assisted by two of his sons, to whose enterprise and sound judgment the recent growth of the business is largely due. When the firm was incorporated, in 1904, under the name of John Wiley & Sons, both sons became officers of the corporation. The elder, Charles Wiley, was Vice-President up to the time of his death in 1916; the younger, Major William H. Wiley, was President from 1904 until his death in 1925. The present President, William O. Wiley, and the Vice-President and Treasurer, Edward P. Hamilton, are both grandsons of the late John Wiley.

Although it is a matter of record that technical books were published by Wiley as early as 1819, the firm continued for many years to conduct a general publishing business, and their publications of this period include many books that now rank among the classics of American literature. Of the illustrious names that appear upon the early Wiley lists, that of James Fenimore Cooper is perhaps most prominently identified with the beginnings of the house of Wiley.

During its long history the firm has occupied many different locations in New York City. The photographs which appear in this booklet show a few of these landmarks in Wiley's career.

About forty years ago John Wiley & Sons decided to devote themselves exclusively to the publication of scientific and

technical works. Realizing the possibility of developing an American Engineering literature, they adopted this field as their own, and were soon recognized as leaders in it. The high standards that brought them this recognition have been steadily maintained to the present day and will determine the character of their future undertakings.

Within the past few years the field covered by the Wiley publications has been broadened considerably. Their list now numbers about one thousand books, on the various branches of Engineering, Chemistry, Mathematics, Geology, Biology, Agriculture, Forestry, and other scientific subjects, as well as Accountancy, Economics, and Business Administration. While continued expansion may be expected, there will be no change in the original Wiley policy, which is to hasten slowly and to be sure of the merits of a manuscript before offering it to the public in the form of a book.

PREPARING THE MANUSCRIPT

PREPARING THE MANUSCRIPT

TYPEWRITTEN copy is preferable to that written by hand; it should be prepared in duplicate, the carbon copy to be retained by the author. The typewritten lines should always be "double-spaced." Handwritten copy is acceptable if very legible, but should never be written in pencil. The copy should be on sheets of white paper of medium thickness, $8\frac{1}{2}$ by 11 inches in size, with margins of 1 inch to $1\frac{1}{2}$ inches at the top, bottom, and left-hand side. Only one side of the sheet should be used. The pages should contain approximately the same number of lines, in order that the total number of words in the manuscript may be readily estimated.

Numbering of Pages.—The pages of a manuscript should be numbered consecutively throughout. Pages inserted after numbering may be designated by letters, as 25a, 25b, etc. When this is done, a note on the preceding page should call attention to these lettered pages; for example, a note on page 25 should read, "Pages 25a and 25b follow." If pages are removed from the manuscript after numbering, attention should be called to their absence by a note on the preceding page.

Illustrations.—If the book is to be illustrated, the drawings for figures or plates should not be made on the manuscript, but on separate sheets. It is customary to designate figures by Arabic numerals. If, in addition to the figures inserted in the text, the book is to contain illustrations, or groups of illustrations, occupying a full page or more, these may be referred to as plates, and may be numbered independently and designated by Roman numerals. If the text is to contain references to figures or plates, it is important that these

references should appear in the manuscript. Lack of agreement between text and illustrations is a frequent source of annoyance to readers. The author may avoid this by rereading the manuscript after the drawings are completed and numbered, and verifying all references.

Subdivisions.—The use of frequent subdivisions is desirable, both in textbooks and in books of reference. It is a great convenience in classroom use and in reference work, and also serves to break the monotony of the closely printed page. In the case of textbooks, it is recommended that the subdivisions be of about equal length, that they be short enough to serve as single assignments, and that they be numbered consecutively throughout the book.

Subdivisions are indicated by the use of center-headings and side-headings. Center-headings stand alone, like chapter-headings, but are set in smaller or less conspicuous type than the latter. Side-headings, or paragraph-headings, are aligned with the text, and are usually set in bold-face type.

Many authors omit the side-heading in the first paragraph of each chapter, regarding this paragraph as a sort of general introduction to the chapter. This omission generally improves the appearance of the page.

Running Headings.—These are the headings that appear at the top of every page, regardless of the subdivisions of the text. They are inserted by the printer, in accordance with the author's wishes, when the pages are being made up. The author is therefore requested to indicate, on the galley proof (see page 32), the plan he wishes the printer to follow in printing these headings.

For our publications we recommend, wherever it is practicable, the printing of the title of the chapter at the top of the left-hand page, and at the top of the right-hand page the title of the last article treated. This article may have extended over a number of pages, in which case a number of right-hand pages will have the same running heading. Where a page contains more than one article, the title of the last should be printed. Another plan which is not uncommon is to print the title of the book at the top of the left-hand page and the title of the chapter

at the top of the right-hand page. We do not favor this, however, as it is to be assumed that the reader knows the title of the book he is reading.

Occasionally an author has a preference for some other plan, which he considers more appropriate for his book. Whether he has some such scheme in mind, or wishes to follow one of the styles mentioned above, it is requested that he indicate his wishes when returning his galley proof.

Footnotes.—These may be written on the same sheet with the text, starting on a new line immediately below the point of reference, and separated from the text by parallel lines above and below, as shown in the following example:

In a dryer the heat carried out by the waste gases [1] may be as high as 40 percent of the total heat of the fuel, or in a well designed machine it may be as low as 7 per cent.

[1] Kent's Mechanical Engineers' Handbook, Tenth Edition, p. 620.

Footnotes should be numbered consecutively throughout each chapter, and designated by Arabic numerals. Thus the first reference in each chapter will be No. 1.

Footnotes that refer to any part of a table are placed immediately below the table. Such footnotes are not designated by reference numbers but by the following reference marks: asterisk (*), dagger (†), double dagger (‡), section (§), parallels (‖), paragraph (¶). These marks are used in the order in which they have been given, the first footnote belonging to each table taking the asterisk.

Styles of Type.—To indicate the styles of type for center-headings, sub-headings, and side-headings, as well as for words or sentences to be emphasized, the following markings are recommended:

One line (_____) for words to be printed in *italics*.

Example: The Chemical Elements (as underlined) to be set in italics.

Two lines (=====) for words to be printed in SMALL CAPITAL LETTERS.

Example: The Chemical Elements (as underlined) to be set in small capital letters.

Three lines (≡≡≡≡≡≡≡≡≡≡) for words to be printed in CAPITAL LETTERS.

Example: The Chemical Elements (as underlined) to be set in capital letters.

One wavy line (~~~~~~~~~~) for words to be printed in **bold-face type.**

Example: The Chemical Elements (as underlined) to be set in bold-face type.

Three lines, two straight and one wavy (≡≡≡≡≡≡≡≡≡≡) for words to be printed in **BOLD-FACE SMALL CAPITAL LETTERS.**

Example: The Chemical Elements (as underlined) to be set in bold-face small capital letters.

Four lines, three straight and one wavy (≡≡≡≡≡≡≡≡≡≡) for words to be printed in **BOLD-FACE CAPITAL LETTERS.**

Example: The Chemical Elements (as underlined) to be set in bold-face capital letters.

If the book is to contain extracts, or other matter, to be set in smaller type than that employed in the text, a vertical line (|) on the side of the matter will indicate type one size smaller than that of the text. Two vertical lines (‖) will indicate type two sizes smaller.

If the book is to be patterned after a book that has already been made, there is no better way for the author to describe his types than by referring to pages of that pattern book.

Use of Bold-face.—When an important technical word is introduced, for the first time, in the text of a book, it may be set in bold-face type, for emphasis. Italics should not be used for this purpose. Bold-face type is also used for side-headings, as stated on page 6.

Use of Italics.—With regard to the use of italics for the purpose of securing emphasis, it should be remembered that the effectiveness of this device depends upon the principle of contrast, and that if used too lavishly it defeats its own purpose. A word or a short phrase is rendered emphatic by being italicized; a long phrase or sentence, similarly treated, not only gains no emphasis, but is actually harder to read.

The above remarks have no bearing upon the use of italics for other purposes. They are properly used, for instance, for foreign words not incorporated into the English language, and for names of periodicals occurring in the text. Italics may also be used for side-headings that are subordinate to one of the regular bold-face side-headings.

Spelling and Punctuation.—We do not insist that an author shall follow any particular authority for spelling, punctuation, etc., but we wish to impress upon him the importance of consistency in these matters. We do not favor the use of "simplified" spelling. All manuscripts accepted by us for publication are read by our office editor for literary style, consistency in spelling, and uniformity in the use of compound words, abbreviations, etc. If many changes are found necessary, the manuscript is returned to the author for his approval.

Abbreviations and Symbols.—At the present time, no one set of abbreviations and symbols is universally accepted by workers in all branches of science. We are glad to say, however, that the American Engineering Standards Committee [1] is now undertaking a broad program of unification of the abbreviations and symbols used in engineering and scientific reports, tables, publications, etc. Until this unification has been accomplished we recommend that each author be guided by the best style sheet available to his own profession.

[1] 29 W. 39th St., New York City.

We particularly recommend the following:

STYLE SHEET OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Based on the report prepared in 1904, by a committee made up of representatives of this society, the American Society of Civil Engineers, and the American Institute of Electrical Engineers.

Issued by the A. S. M. E., 29 W. 39th St., New York City.

STANDARDS OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

Issued by the Institute, 29 W. 39th St., New York City.

(*Note.*—A copy of these rules appears in Pender's "Handbook for Electrical Engineers," published by John Wiley & Sons, Inc.)

SYMBOLS APPROVED BY THE SOCIETY FOR THE PROMOTION OF ENGINEERING EDUCATION

Adopted, June 28, 1918.

Issued by the Society, F. L. Bishop, Secretary, University of Pittsburgh, Pittsburgh, Pa.

REGULATIONS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS

"Governing the form, but not the substance, of standards." Adopted, 1912. Revised, 1913, 1921.

Issued by the Society, 1315 Spruce Street, Philadelphia, Pa.

STYLE SHEET OF THE SOCIETY OF AUTOMOTIVE ENGINEERS, INC.

Based on the A. S. M. E. Style Sheet, and extended to include the S. A. E. nomenclature and matter peculiar to the automotive industry.

Issued by the Society, 29 W. 39th St., New York City.

CONVENTIONAL SIGNS FOR AGRICULTURAL ENGINEERS

Adopted, 1912, by the American Society of Agricultural Engineers.

Issued by the Society, Raymond Olney, Secretary, St. Joseph, Mo.

DIRECTIONS FOR ASSISTANT EDITORS AND ABSTRACTORS OF CHEMICAL ABSTRACTS

Issued by the American Chemical Society, 1709 G St., N. W., Washington, D. C.

Preface.—The Preface affords the author an opportunity of speaking to his reader in a comparatively direct and personal manner and of acquainting the prospective user of the book with the considerations that have impelled him to write it. As many purchasers of books are influenced, to a considerable extent, by the Preface, it is well worth an author's while to plan this part of his work carefully and not be obliged to dash off an inadequate Preface at the last moment.

The Preface to a technical book should contain a definite statement of the purpose and scope of the book, and should explain its exact application to educational or other uses. In other words, it should tell, in a general way, where, how, and by whom the book is to be used.

It is quite possible, however, for a Preface to tell too much. The Preface is not the place for detailed instructions as to the manner of using the book in class, selection and apportionment of material, or adaptation to courses of various lengths. Aside from the question of brevity, such instructions, given at this point, impress the average teacher unfavorably. If the author desires to give them, they may, with propriety, be placed immediately after the Preface, under some such heading as " Remarks to Instructors " or " Suggested Course of Study."

At the end of the Preface it is customary to acknowledge the services of those who have assisted in writing the book or in reading the proof or who have contributed information or illustrations.

Table of Contents.—The Table of Contents may be as simple as the author chooses to make it; in many of our books it is a mere list of chapter-headings. If a more detailed Table of Contents seems desirable, two courses are open to the author. If the book is to be provided with side-headings (see page 6), the more important side-headings in the chapter may appear in the Table of Contents, under the chapter-heading. It is not usually advisable to include all the side-headings except for some special reason.

Side-headings appearing in the Table of Contents may be either tabulated or "set running," i.e., carried across the page as if they were sentences in a paragraph. The former arrangement is generally considered easier to read; the latter gives the page a neat, compact appearance and saves considerable space.

Even though the logical divisions of the chapter are not indicated by headings in the text, the author may, if he chooses, indicate them in the Table of Contents. It is not recommended, however, that he attempt anything like a complete topical analysis of the chapter.

Index.—We consider an Index an essential feature of a book, and recommend that the Index be as full and complete as required by the nature of the subject. Our contract specifies that the author shall furnish the manuscript for both the Index and the Table of Contents. If the author wishes to be relieved of the task of making the Index, we will arrange to have it done, at his expense, by a professional indexer. We recommend, however, that the author perform this part of the work himself, as he is familiar with the subject and knows the relative importance of the topics treated.

Our indexes are usually printed in 8-point type, two columns to the page. No more than three indentions should be used. The page which follows is taken from one of our publications and is typical of our indexes.

In the section headed "The Reading and Return of Proof" (page 32), it is stated that page proof is sent to the author in duplicate, and that one set should be retained by him for use in preparing the Index. It is suggested that this be done in the following manner:

INDEX

The final page proof of the entire book is gone over attentively (not merely read), and each topic to be indexed is underlined, and at the same time entered on a card, in full. The cards are then arranged in alphabetical order. It often happens that, upon bringing the cards together in alphabetical order, the indexer will find cards relating to the same topic, with diverse phrasing; the two or more pages are then entered on one card with the phrasing modified to cover both references. All cards with a common first word are further subdivided as to the second word; all cards except the first one in such a group should be gone over, and the first word crossed off with a heavy line; similarly, if there are several cards with common first and second words, all but the leading card in the second subdivision should have the first two words crossed off. The indexer should make sure that where a subject is "cross-indexed" there is consistency in the references; for instance, one card might read "Water-gas, 229" and another "Gas, water, 361." The indexer would then see to it that both cards referred to 229 and 361. It is especially important that the first reference given after the descriptive phrasing should be the major reference. The reader should never be referred to more than five page numbers; if more entries are to be taken care of, a second indention should be introduced.

When this has been done, the Index may be rewritten in the form of a typewritten list, copied from, and carefully compared with, the alphabetically arranged cards. The galley proof of the Index should be compared with the cards, rather than with the typewritten list, in order to provide a further check. It is preferable to omit the dashes in copying the Index, indicating the subordination of one item to another by indention, as in the example shown.

Bibliography.—If the book is to contain numerous references to other books, each chapter should be followed by a bibliography, which should be arranged alphabetically, according to the authors' names. The books should be listed, one under the other, not "set running." Abbreviations for the names of periodicals, "transactions," etc., should conform to the usage

of the various national societies. (See page 10.) If there are very few bibliographic references, they may be given in the form of footnotes. (See page 7.)

Numbering of Equations.—We recommend the practice of numbering equations consecutively throughout the text. Arabic numerals enclosed in parentheses are used for this purpose in many of our texts.

Problems, Exercises, etc.—In textbooks, devices that test the student's ability to apply what he has read, as well as to remember it, are generally more satisfactory than mere questions. To this end, many of our textbooks contain problems or exercises, with or without answers. When answers are to be published, it is usually considered better to print them in a separate pamphlet, which can be withheld from the student if desirable. In order to fix a principle in the student's mind, illustrative problems worked out in detail are frequently introduced into the text, following the statement of the principle. Following this, other problems for solution may be introduced; or a group of such problems may be given at the end of the chapter.

Summaries.—It is generally agreed that a textbook should contain some provision for tests and reviews. One of our authors, whose numerous textbooks are very successful, places after each chapter a very brief summary of its subject-matter, set entirely in bold-face type. The summary occupies about two pages and is followed by several pages of problems, covering the same subject-matter.

Cross References.—Where cross references are used, the author should take particular pains to see that the page or article numbers referred to are correct. Incorrect references are a source of great annoyance to readers and produce a most unfavorable impression. All cross references, as well as all references to figures or plates (see page 5), should appear in the original manuscript, although, in the case of cross references, the page numbers must necessarily be left blank until the author has seen the page proof.

Copyright.—Authors occasionally forget that the mere giving

of credit in a book, for material taken from another work, does not give one the right to use such material. To avoid any possible infringement of copyright, we urgently caution every author, before making excerpts from the works of others, to secure permission, in writing, from the publisher and author of the book from which he wishes to quote. The publisher should be consulted, at the same time, as to the form to be used in giving credit.

While no person can claim the exclusive right to publish the facts relating to a certain subject—for example, there are numerous histories of the United States and treatises on the steam engine,—each author employs his own language, sequence, and arrangement of matter. It is to these that the copyright gives protection. In other words, it is the literary creation and form, and not the substance, which is protected. Tables of figures of original grouping and arrangement may also be copyrighted, although many persons are of the impression that this is not possible.

Subsequent Impressions and New Editions.—It is obviously necessary for us, as publishers of technical books, to make provision for the changes demanded by the continual advancement in applied science. This does not mean, however, that we can issue an extensively revised edition at the time of each new printing. It is advisable in most cases to postpone such an extensive revision until a third or subsequent edition is contemplated. This question, however, is one that must be settled in each case to the mutual satisfaction of the author and the publisher.

In a second printing, we recommend the correction of vital errors which are misleading to the reader, and of typographical mistakes, since such errors often find their way into a book in spite of the vigilance of the author and the proofreader. With this object in view, the author is notified before his book is reprinted, and is requested to send in copy for such changes as he may wish to have made in the plates. (We print from electrotype plates and not from type.)

PREPARING THE ILLUSTRATIONS

PREPARING THE ILLUSTRATIONS

In preparing the illustrations for a book, the author should take into consideration the nature of his subject and the result desired. For a book on a biological subject, for instance, it is usually necessary for the author to execute his drawings carefully, in ink, as they are almost always reproduced directly. For a book on an engineering subject, on the other hand, clear pencil sketches will suffice, as illustrations of this kind are usually made by the wax process of engraving, for which carefully finished drawings are not required.

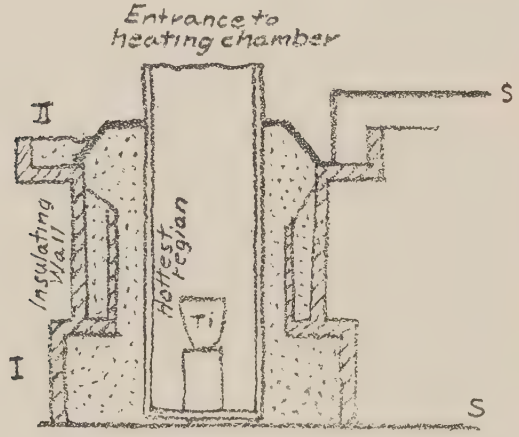
The uses of the various processes, and their requirements in the matter of copy, are briefly explained in the following paragraphs:

Wax-process Engraving.—This process is especially adapted to the reproduction of maps, diagrams, and charts, and is suitable for illustrating engineering, chemical, and mathematical subjects. The process is very simple, and the copy required is of the plainest character. Blue-prints, brown-prints, or clear pencil sketches may be used; but the more accurate they are the better, since less is left to the imagination of the engraver. If pencil sketches are to serve as copy, they should be made with a pencil of medium grade. The copy for an illustration may be the same size as the desired cut (illustration), or may be drawn to a larger scale and subsequently reduced. If the cut is to contain lines of different weights, the relative weights should be plainly indicated in the drawing.

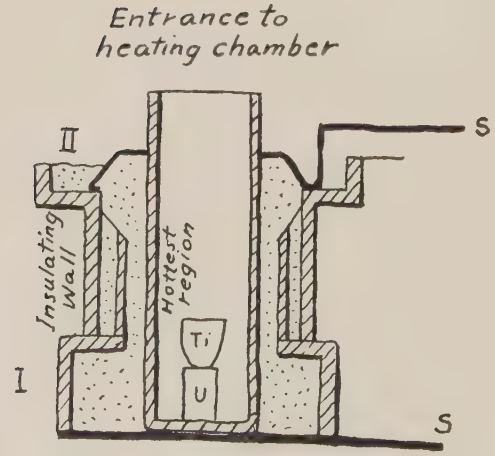
Illustrations showing only the outline of the object may also be made from photographs. Drawings are preferable, however,

as it costs considerably more to make a wax cut from photographic copy.

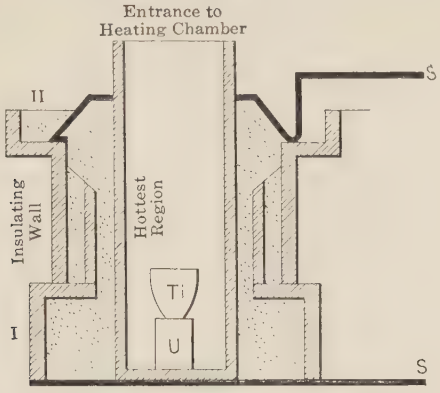
The following will illustrate the possibilities of the wax process.



Copy drawn in pencil.



Copy drawn in ink.



Wax-process reproduction.

It is not necessary to employ a draftsman to letter the drawings from which wax cuts are to be made, as the lettering on the finished cut is made from type. All reference letters, titles, and descriptive matter may be written in pencil on the copy.

The following are a few selected type-faces used in the lettering of our wax cuts. Our engraver carries these fonts in all sizes. The size of the type is selected according to the size of the finished cut and the space available.

These lines are printed in 8 point Century Expanded Italic

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1 2 3 4 5 6 7 8 9 0

These lines are printed in 8 point Century Expanded

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1 2 3 4 5 6 7 8 9 0

These lines are printed in 8 point Gothic, No. 1

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1 2 3 4 5 6 7 8 9 0

These lines are printed in 8 point Condensed Gothic, No. 4

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1 2 3 4 5 6 7 8 9 0

These lines are printed in 8 point Gothic Italics

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1 2 3 4 5 6 7 8 9 0

These lines are printed in 8 point Slope Gothic

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

1234567890

The last two specimens are good substitutes for the Reinhardt style of lettering.

Direct Photo-engraving.—When an actual reproduction of the original drawing is desirable the direct photo-engraving process is employed. Architectural drawings and those intended to illustrate biological subjects are usually reproduced by this process. The copy for the direct photo-engraving process must be drawn in black India ink, on smooth, white bristol board or drawing paper, or on tracing cloth.

To allow for reduction, such illustrations should be larger than the desired cut, but should not exceed five times its area. The author should bear in mind that the lettering, as well as the drawing, will be reduced, and should make the original lettering large enough to be legible after reduction. Another fact that has been frequently overlooked, with unfortunate results, is that when the length of a line is reduced in the course of this process there is a corresponding reduction in its weight, or breadth. The relative weights of lines and the arrangement of drawings are very important in securing attractiveness, interest, and " life " to the book.

Half-tones.—When cuts are made from photographs the half-tone process is employed. Photographs for half-tone re-

productions must be clear and sharp, and must be printed in black on white paper, preferably on paper with a glossy finish. Half-tones can also be made from wash drawings.

Colored Plates.—Because of the extra expense of engraving and printing, we discourage the printing of illustrations in color. By the use of conventional signs and shadings, our engraver can convey the information usually given by colors. When the three-color process is to be employed, the author must submit a finished drawing, in the exact colors that are to be reproduced. Colored plates are costly, both in the making and in the printing, and it is not desirable to use them if the same results can be shown in black and white printing.

Grouping of Drawings.—When a number of figures, intended for reduction, are drawn on a single sheet, it is important that the same percentage of reduction shall apply to all, in order that the engraver may photograph and reproduce the entire sheet at the same time. It is not necessary, however, that the drawings so grouped be in the proper sequence, as the plate can easily be cut up into separate figures.

Manufacturers' Cuts.—If half-tone cuts taken from manufacturers' catalogs are to be used, they must be originals and not electrotypes, since much detail is lost in printing from the latter. Consideration must be given to their size, as a manufacturer may supply a small cut to show an important part of an article and a large cut for a part of lesser importance.

Reproducing only a Portion of the Copy.—Sometimes an author may find it necessary to submit, as copy, a large tracing or photograph, only a portion of which is to be reproduced. If the copy is a tracing and the author does not wish it to be marred in any way, we suggest that he have a blue-print made of it, write his instructions to the engraver upon the blue-print, and forward both blue-print and tracing. The same method may be followed in the case of a photograph for either a wax or a half-tone reproduction; or, if the author prefers, the photograph may be "masked," i.e., a piece of paper may be placed on the photograph to cover the portions that are not to be included in the finished cut. The mask should be attached, or "tipped on,"

to the photograph by means of rubber cement, which leaves no mark after it has been brushed off. If ordinary paste is used, the overlay should be folded around the edge of the photograph, and the paste applied only to the back of the photograph.

Shipping Copy for Illustrations.—As stated on page 5, drawings for figures or plates should not be made on the manuscript sheets. It is a good plan, however, to ship manuscript and illustrations under one wrapper.

MANUFACTURING THE BOOK

MANUFACTURING THE BOOK

When the completed manuscript has been received from the author, we immediately make a careful estimate of the size of the finished book. In order to do this, we select a size of type and a size of type-page, unless we have previously come to an agreement with the author on these points. A few sample pages are then set up by the printer and submitted to the author for his approval or criticism. He is also informed of the estimated size of the book.

Estimate of Size.—The following suggestions are offered for the information of authors who may wish to estimate the number of pages their manuscripts will make.

Number of Words to the Square Inch in Various Sizes of Type

Size of Type	Leaded [1] or Solid	Words to Square Inch
5-point	leaded	50
5-point	solid	69
6-point	leaded	34
6-point	solid	47
7-point	leaded	27
7-point	solid	38
8-point	leaded	23
8-point	solid	32
9-point	leaded	21
9-point	solid	28
10-point	leaded	16
10-point	solid	21
11-point	leaded	14
11-point	solid	17
12-point	leaded	11
12-point	solid	14
18-point	solid	7

[1] Having the lines of type separated by thin metal strips, or leads.

How to Make an Estimate.—First, select the size of type and the size of type-page you think appropriate, and note, in the foregoing table, the number of words per square inch in the type selected. Multiply this number by the number of square inches in the type-page, to obtain the total number of words in the printed page. Then find the average number of words in a page of the manuscript. This may be done with sufficient accuracy by averaging any three pages that appear to be representative of the manuscript as a whole. Multiplying the average number of words in a page by the number of pages will give a reasonably close approximation to the total number of words in the manuscript. Dividing this number by the number of words in the selected type-page will give the approximate number of printed pages represented by the manuscript.

Allowance must be made for the space to be occupied by cuts and tables. An equation or a formula which is to appear on a separate line must be considered as occupying all the blank space which is to surround it.

Example.—The number of words in a square inch of 10-point type is 16; the number of square inches in a 4-by-7-inch type-page is 28. Therefore, if 10-point type and a 4-by-7-inch type-page are selected, the number of words in the printed page is 28 times 16, or 448. Assuming that the number of words on a page of manuscript is 300 and the number of pages is 500, the number of words in the manuscript is 150,000. The number of printed pages is, therefore, 150,000 divided by 448, or 335. To this figure must be added an allowance for cuts and tables unless space has been provided for them in the manuscript.

Sizes of Type.—On the following page are specimens of different sizes of type. The size of the manuscript is the controlling element in deciding the size of type, spacing, and type-page.

Type-faces.—There are other styles and sizes of type, but those illustrated are the most popular.

The following is set in Monotype, style No. 31 (Old Style), with lining figures:

Set with a 2-point lead[1]

(*See page 31 for these type specimens set solid.*)

8 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience, personal independence and self-respect befitting

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

$1234567890 *$1234567890*

10 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience, per-

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

$1234567890 *$1234567890*

11 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical expe-

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

$1234567890 *$1234567890*

[1] A point is $\frac{1}{72}$ of an inch. This rule _____ is the equivalent of a 1-point lead.

The following is set in Monotype, style No. 8 (Modern).

Set with a 2-point lead

(*See page 31 for these type specimens set solid.*)

8 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience, personal independence and

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ *abcdefghijklmnopqrstuvwxyz*

$1234567890 *$1234567890*

10 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience,

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

$1234567890 *$1234567890*

11 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows prac-

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

$1234567890 *$1234567890*

The following is set in Monotype, style No. 31 (Old Style), with lining figures.[1]

Set Solid

See page 29 for these type specimens set with 2-point lead.)

8 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience, personal independence and self-respect befitting

10 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience, per-

11 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal educa ion, wisdom that follows practical expe-

The following is set in Monotype, style No. 8 (Modern)

Set Solid

(See page 30 for these type specimens set with 2-point lead.)

8 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience, personal independence and

10 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience,

11 POINT

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows prac-

[1] For the figures of this font, see page 29.

[2] For the figures of this font, see page 30.

The Reading and Return of Proof.—Manuscript and proof are sent by the printer to the author, and should be returned directly to the printer, with as little delay as possible. The first proof sent out is known as galley proof; it is printed on long strips of paper, each representing about three and a half pages of the finished book. After the galley proof and the cut-dummy have been returned to the printer (see page 33), he immediately makes the changes indicated by the author on the galley proof and inserts the cuts in their respective places. When this has been done, the printer proceeds with the "make-up," that is, he divides the galleys into pages, as they will appear in the finished book. After the first page proof has been sent to the author, corrected by him, and returned to the printer, revised proof is sent out. Heavy black border lines, known as "bearers," around a page of proof indicate that the type-forms have already gone to the foundry, and any subsequent changes will have to be made in the electrotype plates. Proof so marked is known as foundry proof.

Two sets of galley proof are sent to the author, one set showing corrections made by the printer's proofreader. Any and all corrections which the author desires to make must be made on this set of galleys, which should then be returned to the printer, together with all original manuscript. Authors are cautioned to retain the other set of galleys, with duplicate corrections, for future reference.

Galley proof, upon first reading, should be compared with manuscript, word for word. Special attention should be given to formulas, tables, and numerical calculations. It is essential that the author make his changes in ink, and we recommend that he use ink of a different color from that used by the printer's proofreader.

Queries made by the proofreader should be answered. A query is accepted by striking out the question mark; it is rejected by striking out both question mark and suggestion.

" Cut-proof " is the form in which all cuts (illustrations) are submitted to the author. He is expected to paste these on sheets of uniform size, which are known collectively as "cut-

dummy," with the figure number and legend[1] indicated under each cut. The approximate position to be occupied by each cut, in relation to the text of the book, should be marked on the margin of the galley proof; at the same time, all text references to cuts should be carefully checked with the cut-dummy. Cut-dummy should be returned to the printer at the same time as corrected galleys, for page make-up. Pages 34 and 35 illustrate a cut-dummy.

Later, the author will receive two sets of page proof. He will find that this has been corrected in accordance with the changes marked upon the galleys. One set of page proof should be carefully read by the author and all necessary corrections entered on *both* sets. One set should then be returned to the printer without delay.

The duplicate set of page proof is to be retained by the author and used in preparing the Table of Contents and the Index. It is requested that copy for the Index be sent to us, for editing as soon as possible after the last page proofs are returned.

Time Slips.—Each batch of revised proof will be accompanied by a memorandum of the time spent by the printers in making the changes indicated on the previous proof. If this time seems excessive to the author, he is requested to inform us at once. (The printer's charges for making corrections are stated in a letter which we send to the author when the manuscript is placed in the hands of the printer.) The time slips are sent to the author in order that he may know just what the printer's time charges are on each set of proof as it goes through the press, and thus be able to check them at once.

Proofreader's Marks.—If the author uses the symbols shown on page 36 when making corrections on his proof, his intent will be better understood, and delay and expense will be avoided. A proof showing author's corrections and the revised proof made in accordance with these corrections are shown on pages 38 and 39.

[1] "Caption" is frequently but incorrectly used in place of "legend," to designate the title of an illustration or the brief description printed immediately below it.

This page illustrates how the pages of a cut-dummy are to be prepared. Sheets $8\frac{1}{2} \times 11$ inches preferred.

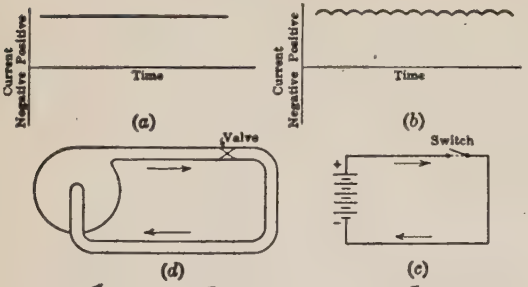


Fig. 1.- Continuous Current

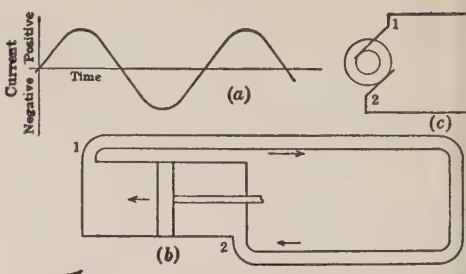


Fig. 2.- Alternating Current

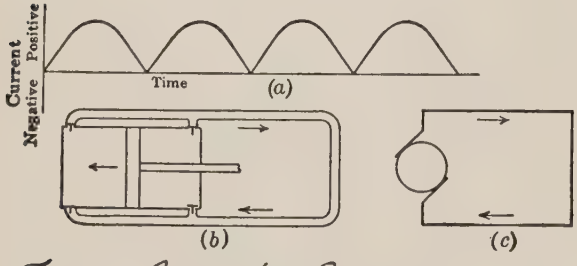
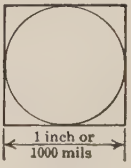


Fig. 3.- Pulsating Current



Circular Mils.
Fig. 4.

(a) (b)

Fig. 5.- Ditrohm Resistor. (a) Unit before enameling. (b) Unit after enameling

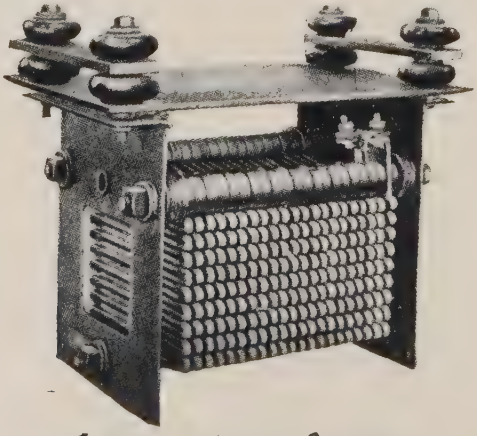


Fig. 6- Grid Resistor.

Reproduction, reduced one half, of a galley proof with the approximate positions of the figures indicated.

CHAPTER I

ELECTRIC CIRCUITS AND THE ELECTRIC CURRENT

1. The Electric Circuit.—Electricity is a medium which provides a convenient means of transferring energy from one place to another, and of changing the form in which this energy exists. This transfer and conversion is accompanied by a "flow of electricity" which is known as the electric current. Electricity is, however, not a *source* of energy.

The electric circuit is the path for the electric current. If a flow of electricity is to take place in a circuit, there must be a complete path for the current. Such a path is called a closed circuit. If the path is interrupted so that no electricity flows, even if there is a source of electricity present, the circuit is said to be *open*. Every electric circuit must have a source of electrical energy if electricity is to flow and energy is to be transferred from one part of the circuit to another.

2. Electric Currents are of three classes: (*a*) continuous, (*b*) alternating, and (*c*) pulsating. A continuous current flows continuously in one direction and at a steady value. Thus, the current which would flow in a circuit containing a battery, Fig. 1 *c*, would be a continuous current, and could be represented by a straight line as in Fig. 1 *a*. The term direct current is used to refer to ordinary continuous currents which are approximately steady, such as the current produced by an ordinary continuous current generator. The curve for current from such a machine is represented by Fig. 1 *b*. The abbreviation d.c. is used to refer to ordinary continuous currents such as are produced by batteries or by continuous current generators. The flow of direct current is similar to the flow of water in a pipe line supplied by a centrifugal pump (Fig. 1 *d*). An alternating current reverses or flows in alternate directions regularly. This is illustrated by Fig. 2 *a*, which indicates that the current for a certain length of time flows in a positive direction through the circuit and then reverses and flows in the opposite direction for the same length of time. The action is similar to the flow of water produced by a reciprocating pump without valves (Fig. 2 *b*). The abbreviation a.c. is used in referring to such a current. A pulsating current pulsates or changes regularly in magnitude. This term is usually applied to a current which flows in one direction, as indicated by the curve (Fig. 3 *a*). The flow of water, due to a reciprocating pump with valves, would correspond to this class of current. A pulsating current is sometimes produced by reversing, through mechanical or other means, the flow of an alternating current such as shown in Fig. 2 *a*.

Fig. 1. Fig. 2. Fig. 3.

3. Conductors and Insulators.—Substances which, when connected to a source of electromotive force, allow an appreciable current to flow, are called conductors. The most common conductors are metals, carbon, salts in solution, or melted salts. Substances which do not permit an appreciable current to flow are called insulators, as for example, air, glass, rubber, cotton, oils. It should be noted that no substance is a perfect insulator, but the amount of current which will flow through so-called insulators is inappreciable as compared with the current which would flow through conductors. Temperature has a decided effect upon the amount of current which some substances will conduct. Thus, glass, which is an insulator at ordinary temperatures, is a good conductor when at a red heat.

A round conductor 1 inch or 1000 mils in diameter would have an area of $1000^2 = 1{,}000{,}000$ cir. mils or 0.7854 square inch (Fig. 4). Hence, 1 square inch is equivalent to $1{,}000{,}000 \div 0.7854 = 1{,}273{,}000$ cir. mils. The equivalent circular mils in a rectangular or square cross-section of conductor can be found by determining the area in square inches and using the above relation, or the area can be expressed in square mils and then reduced to circular mils. If the dimension of the square shown in Fig. 4 is expressed in mils, the area in square mils is $1000 \times 1000 = 1{,}000{,}000$ sq. mils. Since this square is equivalent to 1,273,000 cir. mils, 1 sq. mil $= 1.273$ cir. mils or 1 cir. mil $= 1{,}000{,}000 \div 1{,}273{,}000 = 0.7854$ sq. mil. The square mil is a convenient unit to use when dealing with conductors having a square or rectangular cross-section. In using Equation (3), however, the area A should, in general, be expressed in circular mils; otherwise a different value of K must be used for circular and other cross-sections.

Fig. 4.

4. Rheostats.—We have seen in Chapter III that all conductors possess the property of resistance to a greater or less extent. Because of this resistance, when current flows in an electric circuit, there is a loss of voltage, and a portion of the electricity is converted into heat. As a rule it is desirable to keep the loss due to resistance to a minimum, but in some cases additional resistance is introduced intentionally to control the flow of current or for other purposes. Thus, where electrical energy is used for heating, the conversion to heat energy is accomplished by introducing the necessary resistance in the circuit. A conductor, which is used primarily because it possesses resistance, is called a resistor. Copper or aluminum conductors are not suitable for resistors because they have a low specific resistance so that the resistor would be too bulky. Iron and steel have from six to twelve times the resistance of copper and, therefore, are more suitable for resistors. Alloys are extensively used as resistors because they can be made to have a very high specific resistance. German silver is a well-known alloy of this kind, but for most heating devices, nickel-chromium alloys are used because they will withstand high temperatures without oxidation. Resistors which are intended to have a high resistance and to carry a comparatively small current are commonly built of round wire or flat ribbon wound on an insulating tube. In some cases, after the wire is wound on the tube, it is covered by an insulating enamel which is baked on and which protects the conductor from oxidation and assists in dissipating the heat produced (Fig. 5). When a resistor of low-resistance and large-current capacity is required, wire is not suitable and cast-iron grid resistors are used (Fig. 6).

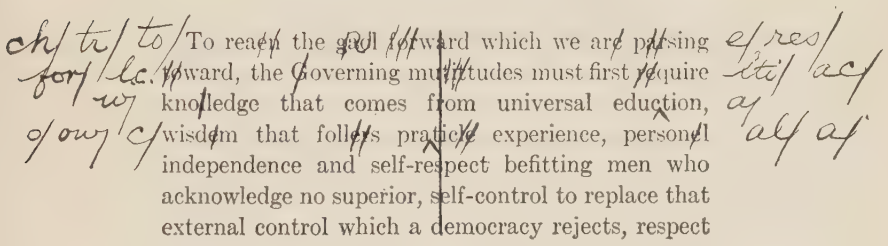
Fig. 5. Fig. 6.

PROOFREADER'S MARKS

∧	Insert the letter, word or punctuation mark indicated.
⊙/	Insert or substitute a period at the place indicated.
✓	Insert an apostrophe.
‘ ”	Insert quotation marks.
=/	Insert a hyphen.
#	Make a space at the point indicated.
⁀	Close up or join separated letters or words.
d	Delete or take out.
lc	Change from capital to small letter.
cap	Change to capital letter.
s.c.	Change to small caps.
ital	Change to italics.
rom	Change to roman type.
wf	Wrong font letter.
tr	Transpose.
⌐⌙	Words or letters inclosed by line should change places.
¶	Paragraph here.
no ¶	No paragraph here.
Stet, or.....	Restore word or sentence mistakenly marked out.
Qy.	Is this right?
X	Broken letter.
⌊	Move to left.
⌉	Move to right.
⊥	Push down space.

How to Indicate Corrections.—When proof is read for verification of copy and changes and corrections are found to be necessary, the author should visualize an imaginary line dividing the type-page into two columns. Corrections for the portion of the page at the left of this line should be indicated on the

extreme left on the white margin, in their respective order. Corrections for the portion of the page at the right of this line should be indicated on the right-hand margin, close to the type-edge, in their respective order. We print below an illustrative example.



REVISED PROOF OF ABOVE

THE PAN-AMERICAN SPIRIT.

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience, personal independence and self-respect befitting men who acknowledge no superior, self-control to replace that external control which a democracy rejects, respect

Author's Alterations.—The term "author's alterations" is applied to changes in content, or additions thereto, or rearrangements of type-matter, made after the manuscript is in type, except where such changes, additions, or rearrangements are due to printer's errors in failing to follow copy. We cannot lay too much stress upon the importance of reducing author's alterations to a minimum, as they are very costly. In our contract, we assume a certain part of this expense, but the author is liable for the cost in excess of this amount. Author's alterations can be greatly reduced by the careful preparation of manuscript It is desirable for an author to delay sending his manuscript to a publisher until he feels sure that it is exactly as he wishes to

Continued on page 40

A CORRECTED PROOF-SHEET.

The Pan-American Spirit

To reach the gaol toward which we are pressing forward, the Governing multitudes must first acquire knowledge that cames from universal education, wisdom that follows practical experience, personal independence and self-respect befitting men who acknowledge no superior, self-conrol to replace thet externeal control which a democracy rejects, respect for law, obedience to the lawful expres sions of the public will, consideration for the opinions inter ests of others equally entitled to a ~~vote~~ in the State,

loyalty to that abstract conception—one's country—as inspiring as that loyalty to personal sovereigns which has so illumined the pages of history, subordination of personal interests to the public good, love of Justice and mercy, of liberty and order, all these we must seekwith slowand patient effort; and of how many shortcomings in his own ~~his own~~ land and among his own people each one of us is conscious. Yet no student of our times can fail to see that not America alone, but the whle civilized world, is swinging away from its old governmental moorings and intrusting the fate of its civilization to the capacity to govern. By this pathway mankind is ~~to~~ travel, whithersoeve it leads. Upon the success of this our undertaking the hope of humanity depends. Nor can we fail to see that the world makes substantial progress more toward perfect popular self-government.

REVISED PROOF OF SAME PAGE

THE PAN-AMERICAN SPIRIT.

To reach the goal toward which we are pressing forward, the governing multitudes must first acquire knowledge that comes from universal education, wisdom that follows practical experience, personal independence and self-respect befitting men who acknowledge no superior, self-control to replace that external control which a democracy rejects, respect for law, obedience to the lawful expressions of the public will, consideration for the opinions and interests of others equally entitled to a voice in the State, loyalty to that abstract conception—one's country—as inspiring as that loyalty to personal sovereigns which has so illumined the pages of history, subordination of personal interests to the public good, love of justice and mercy, of liberty and order. All these we must seek with slow and patient effort; and of how many shortcomings in his own land and among his own people each one of us is conscious.

Yet no student of our times can fail to see that not America alone, but the whole civilized world, is swinging away from its old governmental moorings and intrusting the fate of its civilization to the capacity of the popular mass to govern. By this pathway mankind is to travel, whithersoever it leads. Upon the success of this our undertaking the hope of humanity depends.

Nor can we fail to see that the world makes substantial progress toward more perfect popular self-government.

see it in print; if he does this, he will not be inclined to rewrite the book on the printer's proof-sheets.

It is desirable that changes, as far as possible, be made in the galley proof rather than in the page proof. Changes in the latter are likely to be more expensive, as the addition of new material may cause over-running, i.e., the transfer of type-matter from one line to another or from one page to another. Where the correction involves the omission of words and the substitution of others, it should be arranged, if possible, that the amount taken out and the amount substituted occupy equal spaces; by observing this precaution, the author will avoid any unnecessary over-running of the lines. Changes in the electrotype plates are both troublesome and costly and should not be necessary if the author asks to see a revise of the page proof. In addition to this, changes made in electrotype plates frequently weaken them.

Format.—A suggested layout for a book is given on the following page.

SUGGESTED LAYOUT

Bastard title[1] (right-hand)
Blank page or advertising page[2] (left-hand)
Blank page (right-hand)
Frontispiece (left-hand)
Title page (right-hand)
Copyright page and printer's imprint (left-hand)
Dedication (right-hand)
Blank page (left hand)
Preface (begins on right-hand)
Table of Contents (begins on right-hand)
List of Illustrations[3]
Introduction (begins on right-hand)
Half title[4] (right-hand)
Blank page (left-hand)
First page of Chapter One (right-hand)

Following the text may be:

Bibliography (see page 14 for our recommendations)
Appendix (begins on right-hand)
Glossary (begins on right-hand)
Index (begins on right-hand)

NOTE.—The first eleven items are paged with Roman numerals.

[1] The title of the book without name of author or that of publisher.

[2] On this page may be printed a list of the author's works or of other books on kindred subjects.

[3] We have discouraged the printing of lists of illustrations in our books, since we believe that they are not generally read.

[4] The title of a part of the book, printed on a separate page, immediately preceding the first page of the part designated.

ABRIDGED GLOSSARY OF TERMS USED IN THE MANUFACTURE OF BOOKS[1]

All words in these definitions set in bold face are defined in this glossary.

Addendum (*plural*, **Addenda**).—Something added or to be added; specifically, additional matter placed at the back of a book to supplement the main body of the text or to supply omissions. Usually plural in this sense.

Agate.—A size of type. Now called $5\frac{1}{2}$ point under the **point system.**

Albertype.—A Collotype process of printing in ink from a sensitized gelatin plate. Invented by Joseph Albert. *See Collotype.*

Alignment.—When different sizes of type are so justified that their faces all line at the bottom, they are said to be in alignment.

Antique.—A name given to a type-face. The side-headings in this book are set in 10-point Old-style Antique.

Antique Paper.—A book paper that has not gone through the calender, and is without finish. It is light in weight and is useful for giving **bulk** to a book.

Appendix (*plural*, **Appendices**).—A supplement to a book, printed and bound as a part of the book. It follows the last chapter and precedes the Index.

Arabic Numerals.—The numerals in common use, 1, 2, 3, 4, 5, etc., are known as Arabic numerals.

Ascender.—That part of a **lower-case** letter which extends above the body of the letter. The letters b, d, f, h, k, l, and t have ascenders. *See Old-style.*

Author's Alterations.—Work done by the compositor after proof has been rendered to the author and corrected by him.

Author's Proof.—A proof sent to the author to be compared with the copy and corrected if necessary.

Backbone.—*See Shelf-back.*

Balance.—When a piece of type composition has its various parts so grouped that they are equalized in mass, it is said to possess balance.

Bastard Title.—A page on which is printed the title of the book without the name of author or publisher. It precedes the title page. Not to be confused with **Half-Title.**

[1] Reprinted in part from "Printing for School and Shop," by Frank S. Henry, published by John Wiley & Sons, Inc.

Bearers.—**Electrotype bearers** are pieces of metal, type-high, placed around type-forms to protect them while a wax mold is being made from them. *See Guards.* *See p. 32, The Reading and Return of Proof.*

Ben Day Process.—A process, invented by Ben Day and used by photo-engravers, for transferring designs to metal plates.

Bibliography.—A list of books bearing on a particular subject. When such a list is included in a book, each chapter may be followed by a bibliography of the subject of that chapter, or the complete bibliography may be given at the back of the book, following the last chapter. If there are very few bibliographic references, they may be given in the form of footnotes.

Binder's Stamp.—A pattern or design cut in brass and used in stamping or embossing book covers. Sometimes called **a Die.**

Black-letter.—A black-faced type. *See Bold-face.*

Blank-out.—The blank part of the last page of a chapter.

Bleed.—To trim a book so closely as to cut into the printed part of the pages.

Blocks.—Squared pieces of wood or metal upon which **electrotypes** are fastened or mounted for printing.

Blue-print.—A photographic print on blue paper, made from a tracing or a negative, and used by architects, engineers, and photo-engravers.

Body.—The size or depth of a type, as distinguished from its **face** or style.

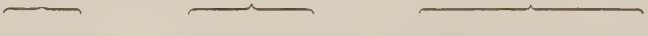
Bold-face.—A name given to type that is heavier than the text in which it is used. Side-headings are usually set in **bold-face type.**

Border.—Anything enclosing a job, and intended to ornament it.

Bourgeois.—A size of type. Now called 9-point under the **point system.**

Box Head.—The enclosed heading over a column of figures. The name is also applied to any heading surrounded by **rules** and **borders.**

Braces.—A typographical device to connect two or more lines. A few samples of braces are printed below.



Brass Rule.—Thin, type-high strips of brass, of different thicknesses, either plain-edged, or with ornamental face, used for straight lines, columns, ruling, etc.

Break-line.—The last line of a paragraph.

Brevier.—A size of type. Now called 8-point under the **point system.**

Brilliant.—A size of type. Now called 3½-point under the **point system.**

Bristol-board.—A fine quality of calendered cardboard, used for fine drawing, printing, etc.

Bromide Paper.—A paper which has been subjected to a coat of gelatin saturated with silver bromide; used in contact printing.

Brochure.—A brief treatise, stitched but not bound, usually of transitory interest.

Bulk.—The thickness of a book without its cover.

Calender.—A mechanical device, consisting of alternate rollers of chilled iron and paper, of different diameters, used for polishing the surface of sized and coated papers.

Canceled Figures.—Figures with strokes through them, used in textbooks of mathematics, etc. 1 2 3 4 5.

Canceled Matter.—Type matter or plates that have been prepared for printing but are not to be used. *See Kill.*

Caps.—Capital letters.

Caption.—A heading, as of a chapter, table, etc. Caption is sometimes, but incorrectly, used to designate the title of an illustration or the brief description printed immediately below it. *See Legend.*

Card Plate.—A list of books by the same author, or of books on related subjects, usually facing the title page in a book.

Case.—The cover of a book, printed, stamped, and made up to the proper size, ready to be placed upon the book.

Case.—A shallow tray of wood, divided by partitions, in which type is kept.

Cast.—An exact duplicate of a type-form, obtained either by electrotyping or stereotyping. *See Electrotype.*

Catchword.—The most distinctive or significant word in a title, often placed first in entering the title in a list or catalog. Thus "Principles and Practice of Surveying" might be entered as "Surveying, Principles and Practice of," the catchword being "Surveying."

Chapter-heading.—The main heading at the beginning of each chapter.

Chase.—An iron or steel frame, in which **forms** are locked, so that they may be held firmly on the bed of the press.

Coated Paper.—A book paper into which china clay or talc has been worked. It is made in glossy or dull finish and is used for printing **half-tone** illustrations.

Collating.—The examining of **signatures** for proper sequence, after **gathering** and before sewing.

Collotype.—A method of printing in the lithographic manner from a plate of gelatin. This process is known by different names in different countries.

Color Work.—A term used to cover that part of printing in which the work is done in more than one color.

Column Rule.—A metal rule used to separate columns of type, or in tables of figures.

Combination Plate.—A plate in which both line-work and **half-tones** appear, and which is made from two separate negatives.

Composing-room.—A room where type is set or composed and made up into **forms** for printing.

Composing-stick.—A metal device used by compositors to hold the type while it is being assembled into lines.

Composition.—That part of printing covering all the necessary operations incident to preparing forms for press. *See Typography.*

Compositor.—One who composes type or performs any of the various operations incident to preparing forms for press; a type-setter.

Contents.—A list of the chapters, sections, articles, or other divisions of a book; a Table of Contents printed in the front of a book. *See Suggested Layout, page 41.*

Copy.—All material furnished to the printer and to be used by him in the production of printed matter. It may consist of manuscript, reprint, illustrations, photographs for reproduction, etc.

Copy-holder.—One who reads copy to a proofreader.

Corrections.—Any changes made in type after proofs have been taken.

Cropped.—Cut or trimmed to fit into a given space. (Said of an engraving or electrotype.)

Cross Reference.—A reference, in the text of a book, to another part of the same book.

Cut.—A printed illustration; also the plate or block from which an illustration is printed.

Cut-in Side Note.—A note set into the side of a page of printed matter.

Dashes.—Plain or ornamental pieces of **rule** used to separate various parts of printed matter.

Dead Matter.—Type matter or plates that have been used for printing but are not to be used again and may therefore be distributed or melted. *See Live Matter.*

Deckle.—The feathery edge formed upon paper in the process of manufacture. It is sometimes left on the printed sheet to give an artistic effect.

Dedication.—A statement, appearing on one of the first pages of a book, that the book is dedicated by the author to a certain person therein named. The dedication usually consists of a single sentence, which may, however, be quite long and may include an appreciation of the character or services of the person thus honored. *See Suggested Layout, page 41.*

Delete.—To expunge; to remove. *See page 36.*

Descender.—That part of a **lower-case** letter which descends below the body of the letter. The letters g, p, q, and y have descenders. *See Old-style.*

Die.—*See Binder's Stamp.*

Distribution.—The placing of type, rules, leads, furniture, and other material in their respective places after they have been used in a job.

Double-leaded—Set with twice the usual amount of white space between lines of type. As the two-point lead is in very general use, "double-leaded" is commonly understood to mean "set with a four-point lead." This paragraph is double-leaded. *See Leads, Leaded Matter,* and *Solid Matter.*

Dummy.—Unprinted sheets made up into the form in which the finished job is to appear.

Duotone.—An ink which, on drying, gives the job the appearance of having been printed in two different colors.

Duotype.—Two **half-tone** plates made from one copy, both from the same negative, and etched differently.

Egg-shell Finish.—A finish given to enameled papers, whereby the luster is destroyed.

Electrotype.—A facsimile of set type, slugs, or relief plates, forming a printing surface in one piece. Books are usually printed from electrotype plates and not from type-forms.

Em.—The square of any body of type. The **pica** em is the unit of measurement in printing offices.

Embossing.—Pressing paper or cardboard between a pair of dies so as to leave the design in relief.

Enameled.—Coated and calendered to a high polish. (Said of paper.)

English Finish Paper.—A supercalendered paper, with a dull finish.

Errata.—The plural of *erratum,* an error; specifically, the errors discovered in a book after printing. A slip of paper or an extra page, calling attention to the errata and correcting them, is frequently inserted at the next printing.

Expanded.—A name given to a type-face whose width is slightly greater than normal.

Extended.—A name given to a type-face of extreme width.

Face.—That part of a type which is inked and which leaves the impression on the printed surface.

Fiber.—Part of the cellular structure of plants; used in paper-making to impart strength. The longer the fiber, the stronger the paper.

Figure.—A small illustration or diagram, printed in the text of a page. Figures are usually numbered consecutively, by means of Arabic numerals printed below them.

Fly Leaves.—Blank leaves at the beginning or end of a book.

Folio.—The name given to a sheet of paper 17 by 22 inches in size.

Folio.—A page number. Even numbers are placed on the left-hand page and odd numbers on the right-hand page.

Follow Copy.—An order indicating that the compositor is to set up matter exactly as it appears in copy, making no changes whatever in phraseology, punctuation, capitalization, etc.

Font.—A complete assortment of any one size and style of type.

Footnote.—An explanatory note put at the foot of a page, and usually referred to by some specific mark in the text.

Foreword.—A preface, especially one written by a person other than the author of the book in which it appears. When a book contains two prefatory articles, the one not written by the author is called the foreword and usually precedes the author's preface. *See Suggested Layout, page 41.*

Form.—An assemblage of type, quoins, etc., locked up ready for press.

Format.—A term used to designate the general style of a book as to size of page and type, margins, dimensions, etc. *See page 41.*

Foul Proof.—Proof upon which the author has marked the changes he desires, as distinguished from the revised proof.

Four-color Process.—A process by which several different color values and effects are obtained by the use of the primary colors and black. See **Primary Colors.**

Front Matter.—All matter that precedes page 1 in a book. It consists of the Title Page, Preface, Table of Contents, etc. Roman **folios** are used to designate the pages of front matter. *See page 41.*

Furniture.—Pieces of metal or wood used in making up **forms.** Furniture comes in widths which are multiples of **picas,** and in various lengths.

Gage, Type.—*See Type Gage.*

Galley.—The shallow tray, made of metal or wood, into which the set type is turned from the composing-stick, and from which the first or galley proofs are taken. *See p. 32.*

Galley Press.—A device consisting essentially of a base and a heavy roller running on tracks, used for proving galleys of type.

Galley Proof.—A pull of proof taken while the type is standing in the galley.

Gathering.—The process of collecting printed **signatures** in consecutive order, preparatory to binding.

Gothic.—A name given to a type-face, usually square in outline and devoid of **serifs.** This letter is in gothic **H.**

Gravure.—A process by which an illustration is printed from a design engraved or etched upon a metal plate, the grooves or cells which form the design being filled with ink and the rest of the surface wiped clean. Also called Art-gravure, Photogravure, Rotogravure, etc.

Guards.—*See Bearers.*

Guard.—A strip of paper which is bound into the back of a book, and to which an illustration or map is pasted; a strip of paper bound into an album or scrap book, to receive the leaves.

Hair-line.—A very fine line of any type-face.

Half-title.—The title of a part of a book, printed on a separate page, immediately preceding the first page of the part designated.

Half-tone.—A photographic process of making relief-plates on metal (as copper, zinc, etc.) for illustration, in which the entire surface of the plate is broken up into a regular series of small dots. **A Silhouette, or Outline Half-tone,** is one in which the background has been cut away. **A Vignette Half-tone** is one in which the outside edges are shaded and appear to fade away until they are lost on the white surface of the paper.

Imposition.—The placing of pages in a form so that they will print in proper position on the sheet.

Imprint.—The name and address of the publisher, appearing at the foot of the title page; a name put on printed matter to show who did the printing

Indention.—When one line stands farther in than another it is said to be indented. Paragraphs are usually indented. If the first line begins flush, and the subsequent lines are set in a little, the indention is called a hanging indention. This paragraph has a hanging indention.

Index.—A list of the topics treated in a book, with the numbers of the pages on which they occur, alphabetically arranged, and usually printed at the back of the book.

Initial.—A large letter sometimes used at the beginning of the first word of one of the main divisions of a book.

Inserts.—Pieces of printed matter produced separately from the main body of a book or magazine, and inserted in proper position before binding.

Intaglio.—Any engraved surface upon which the design is cut in the metal, and filled with ink, the surface being cleaned, so that the ink in the design may be transferred to paper.

Intertype.—A composing machine similar to the linotype. *See Linotype.*

Introduction.—A preliminary statement made by an author in explanation of the subject or design of his work. An introduction differs from a preface in being an integral part of the body of the text, whereas a preface is a separate introductory statement usually preceding the table of contents.

Italic.—A sloping type-face. *These words are set in italic.*

Jacket.—A separate paper cover for a bound book, bearing the title and description of the book.

Jacket.—One of the four-page units of a **signature.**

Journeyman.—A full-fledged workman.

Justify.—To space lines of type so as to make them of absolutely equal length; to add **leads** or other suitable material so that a small type, together with the added material, may be the same height as the larger types used in the same line.

Keep Standing.—An order indicating that type matter, after being used, is to be held for possible reprinting.

Keyboard.—An assemblage of keys, systematically arranged, each of which controls some mechanism so arranged that a matrix may be assembled (as in the **Linotype** and Intertype) or a letter cast (as in the **Monotype**).

Kill.—To draw lines through printed matter or illustrations, to indicate that they are not to be used.

Laid Paper.—Any paper which, when held to the light, shows close, parallel lines, some of them frequently running at right angles.

Lanston Machine.—A monotype; so called from the name of its inventor. *See Monotype.*

Layout.—Practically, a working diagram of a job. Usually marked to show the general grouping of a job, and also specifying the sizes and kinds of type to be used.

Leaded Matter.—Type-matter with leads between the lines. Reading matter is usually set with a two-point lead. *See Double Leaded, Leads, and Solid Matter.*

Leaders.—Periods or dots cast to different multiples of the body size. They are used in tables and indexes that are set in single columns, to lead the eye from one point to another.

Leading.—Placing the required number of leads in a piece of composition.

Leads.—Strips of metal, made to multiples of points, and used in spacing lines of type. The standard lead is 2 points.

Leaf.—Each separate sheet of paper in a book.

Legend.—The title of an illustration or the brief description printed immediately below it.

Letterpress.—The text of a book as distinguished from the illustrations; anything printed from type.

Letter-spacing.—Putting thin spaces between letters in a word in order to increase the length of the word, or to make the white space between the letters appear uniform.

Light-face.—A name sometimes given to a type-face whose major and minor elements are very narrow, and therefore light in appearance.

Line Drawing.—A drawing in ink or crayon, from which a **line etching** is made.

Line Etching.—A **photo-engraving** made from a pen-and-ink drawing, without the use of the screen which is employed in making **half-tones.** In a line etching all lines are reproduced as they appear in the drawing.

Linotype.—A machine that automatically casts a "line o' type," or slug, after the operator has assembled a line of matrices, and then distributes the matrices into a magazine, ready for use.

Lithography.—The process of reproducing illustrations by engraving or etching a design on a flat lithographic stone (soapstone) and, by the use of sensitized paper, called transfer paper, transferring this design to another stone, from which the printing is done.

Live Matter.—Type matter or plates that are to be used for printing and then held for possible future use. *See Dead Matter.*

Lock-up.—The locking up of **forms** for press.

Long Primer.—A size of type in use before the adoption of the **point system.** Ten-point is the nearest modern size to Long Primer.

Lower Case.—The lower of a pair of type cases, the one in which the small letters are kept; also, one of the small letters. To designate a lower-case letter on a proof, the contraction "l.c." is written.

Machine Finish.—Usually, a dull finish, left on paper as it comes from the paper-making machine.

Make-ready.—The process of getting a job ready to print.

Make-up.—A general term for taking the type from the **galley,** putting it into page form by inserting blocks of cuts, dividing the matter into page lengths, and adding **running heads,** titles of subdivisions, **folios,** footnotes, etc.

Margin.—The amount of space around the printed matter on a page.

Marginal Note.—Explanatory matter placed in the margin of a page, usually beside the matter to which it refers.

Matrix.—That part of a mold in which the **face** of type is cast.

Minion.—A size of type in use before the advent of the **point system.** Seven-point is the size nearest to minion.

Modern.—A name given to a type-face that is characterized by straight **serifs** and thin **hair-lines.**

Mold.—That part of a casting-machine in which the **body** of the type is cast.

Monotone.—All in one tone. A name given to a type-face in which the various elements are all of equal width.

Monotype.—A machine, invented about 1888 by Tolbert Lanston, an American, that casts and composes individual type units into lines, ready for proving. *See Lanston Machine.*

Mortise.—Any cavity cut out so that something may be inserted in it.

MS.—A manuscript; *plural,* **MSS.**

Nonpareil.—A size of type in use before the adoption of the **point system.** It was just half the size of **pica.** It is therefore 6-point under the point system.

Numerals.—The Arabic numerals are 1, 2, 3, 4, 5, etc.; the Roman numerals are I, II, III, IV, V, etc.

Offset.—A smudge resulting from carrying so much ink on a sheet that some of it adheres to the bottom of the sheet above it.

Offset Printing.—*See Lithography.*

Old-style.—A type-face, characterized by oblique **serifs.** The text of this book is set in old-style. The figures of old-style have **ascenders** and **descenders,** as will be noted: 1, 2, 3, 4, 5, 6, 7, 8, 9.

Optical Center.—That point on a printed page which the eye seems naturally to seek as the center. It is slightly above the actual center of the page, being approximately three-eighths of the distance from the top.

Over-running.—Carrying over words from the end of one line to the beginning of the next. Over-running is frequently made necessary by the insertion of new matter; it is sometimes done to avoid a series of divisions and to improve the appearance of the page.

Oversheets.—Odd sheets or **signatures** left over after all the complete copies of an edition have been gathered.

Pagination.—The numbering of pages in a book.

Paging.—Making type-matter into pages of uniform length. *See Make-up.*

Pearl.—A size of type. Under the **point system,** pearl became 5-point.

Perforating.—Punching small holes or slits in a piece of paper so that it will tear easily at some desired place.

Photo-engraving.—Any engraving process in which photography plays an important part and by which an illustration plate is reproduced directly from the copy, such as a **zinc etching, half-tone,** etc.

Photostat.—A camera designed to reproduce documents, as deeds for record, checks, policies, drawings, etc., on **bromide paper**; also, the print produced.

Pi.—Type-matter that has fallen apart, with the result that its various elements are badly mixed.

Pica.—The name of a type-size. Under the **point system,** pica became 12-point. The name pica is much in use. It is the unit used in designating the size of a printed page. There are six picas to an inch. A type page 4 by 7 inches would measure 24 by 42 picas. It is also the unit of length of **leads, slugs, rules, furniture,** etc.

Piece-fraction.—A fraction that has been made up of more than one piece. The most-used fractions, like ¼, ½, ¾, etc., are made in one piece; but unusual fractions, like $\frac{42}{100}$ or $^{129}/_{600}$, are built up of pieces, and called piece-fractions.

Plate.—Any metal surface so prepared that after being inked it is capable of yielding impressions.

Plate.—A printed illustration occupying a full page or more. Plates are sometimes numbered consecutively throughout a book and designated by Roman numerals.

Point.—The present standard of measurement for type, the unit being 1 point, or approximately $\frac{1}{72}$ of 1 inch. Actually it is 0.013837 inch.

Point System.—A system of casting type bodies on some multiple of a unit called a **point.**

Preprints.—Paper-bound copies of a book, issued in limited number and for some special purpose, previous to the date of publication.

Press Proof.—A final impression, taken on the press and on the paper that are to be used for the finished work. This is not often done, on account of expense.

Primary Colors.—Red, yellow, and blue.

Process Work.—Work obtained by printing from plates prepared by the **photo-engraving** process; also, a **half-tone** process whereby varicolored pictures may be obtained by the use of three- or four-color plates as originals.

Progressive Proofs.—A set of proofs of plates for color printing, each plate showing a separate color and the order in which the colors are to print.

Proof.—Any printed impression of a job that has been made for the purpose of inspection and correction.

Proofreader.—One whose duty it is to read proofs and mark the errors.

Pulp.—Wood or other vegetable fiber from which paper is made.

Quads.—Blocks of type metal, cast to point sizes of body, and in multiples of the square of the body. A one-em quad is just as wide as it is thick; a two-em quad is twice as wide as it is thick; a three-em quad is three times as wide as it is thick.

Register.—Forms are said to register if their various parts are in such position that when they are all printed on a sheet each printing will be in its proper place.

Reprint.—(1) A new printing of an edition already published. (2) An edition produced more cheaply than the original, often by another publisher. Also called Popular Copyright, or Rebind.

Retouching.—Art work or painting done upon a photographic print to cover defects, correct tone values, eliminate parts not wanted, or put in additional parts.

Review Copy.—A copy of a newly published book, sent by the publisher to a newspaper or periodical, or to some qualified person, in order that a review of it, or a notice of its publication, may be written and published.

Revise.—To compare a marked proof with a proof of a corrected job. After the proof is revised it is known as the **first revise.** If the corrections are not all made, and a second proof is necessary, that one is known as the **second revise**; and so on.

Roman.—The word "roman," when used in connection with type-faces, means that the vertical elements are upright, and not inclined, as are the same elements in the **italic** form.

Roman Numerals.—I, II, III, IV, V, etc., are Roman numerals. **Lower-case** Roman numerals, i, ii, iii, iv, v, etc., are used to designate the pages of **front matter.**

Ross Board.—A chalk-finished drawing board that comes in various degrees of roughness.

Routing.—Cutting away that part of any printing-block which is not needed, and which would be likely to mark the sheet.

Rub-off.—An impression made by placing a piece of thin paper over the lettering on the **shelf-back** of a book, and rubbing it with the side of the exposed lead of a pencil.

Rules.—Strips of brass or lead, type-high, one long edge of which has been prepared as a printing surface.

Run-in Cut.—A cut set into the page in such a way that there is type-matter on three sides of it.

Running Heading.—The heading printed in the space above the text, at the top of each page of a pamphlet or book. *See p. 6.*

Scoring.—Making a crease in heavy paper stock, so that it may be folded without breaking.

Screen.—A term used in referring to the number of dots to the linear inch in a **half-tone** plate or negative. The screen of a plate is determined by the quality of paper upon which it is to be printed.

Script.—A type-face resembling handwriting.

Serif.—A small projection at the ends of a letter.

Shelf-back.—That part of a book which is exposed when the book is placed on a shelf, and on which the title of the book and the name of the author are stamped. Sometimes called **Backbone.**

Side-heading.—A subheading placed at the side, instead of at the center of a printed page. *See p. 6.*

Signature.—A printed and folded sheet. The signatures are sometimes numbered consecutively throughout a book, to show the order in which they are to be assembled. A signature usually consists of 16 pages, but may comprise 4, 8, 16, 32 or 64.

Silhouette or Outline Half-tone.—A **half-tone** plate in which the background has been cut away.

Silver-print.—A photographic print, on plain paper sensitized with nitrate of silver, used chiefly by artists as a guide or basis for line drawings.

Sinkage.—Blank space left above a chapter-heading.

Skeletonizing.—Taking a job apart and rebuilding it so that its various parts may be printed in different colors.

Slip-sheeting.—Placing pieces of heavy, rough paper between printed sheets so that the printing on one sheet will not **offset** on another.

Slugs.—Pieces of lead, about $\frac{3}{4}$-inch high, usually 6 or 12 points thick, used as spacing material between lines of type. The bar of metal with the type cast on it by the **Linotype** or Intertype is called a slug.

Small Caps.—Capital letters, usually made for book **fonts,** but of a smaller size than the regular capitals. They are generally made about the same height of face as a **lower-case** m.

Small Pica.—A size of type under the old system. Under the **point system** small pica became 11-point.

Solid Matter.—Type-matter that has been set without the use of **leads** between the lines.

Sorts.—Type of various sizes and kinds held in reserve for replenishing **cases.**

Spacing.—Putting the proper amount of material between words, lines, or groups.

Square Half-tone.—A **half-tone** that is either square or rectangular in shape, provided all sides are at right angles to each other.

Squares.—The edges of a cover, which extend all around beyond the pages of a book.

Stereotype.—A plate cast in type metal from a plaster-of-Paris or papier-maché matrix.

Stet.—A term used in proofreading. When written on a proof, stet means, "Do not remove the part marked out; let it stand." *See p. 36.*

Stipple Board.—Stipple finished **Ross Board.**

Straight Matter.—Type composition that does not contain display lines, formulas, or tabular matter.

Stripping.—Transferring a wet negative from one glass to another; turning and combining two or more negatives.

Sub-title.—A second or subordinate title, usually explanatory or descriptive. In the following example, the words after the colon form the sub-title.—"Public Water Supplies: Requirements, Resources, and the Construction of Works."

Superior and Inferior Letters or **Figures.**—Small letters or figures, cast to print above or below the line, and used for reference notes, chemical and mathematical work, etc.

Tail-piece.—An ornamental design used at the conclusion of a chapter or a piece of printing.

Tapes.—Strips of cloth or tape which are pasted or sewed to the back of a book, and the edges of which are glued down to the cover, to strengthen the binding.

Text.—The **straight matter** that forms the body of a book.

Three-color Process.—A process by which various color values and effects are obtained by the use of the three **primary colors.**

Thumb Index.—An index, alphabetical or otherwise, printed, to facilitate quick reference, along the front edges of a book, so that the words or letters of the index run simultaneously from top to bottom and from the first to the last page of the book, portions of the margins being cut away to make the index visible when the book is closed. *See Index.*

Tracing Cloth.—Smooth, transparent linen cloth, sized on one side, on which tracings of drawings are made.

Turned Letter.—A letter put in upside down to call attention to the fact that another letter has been substituted for the right one. This is usually done when the right letter is not available.

Type-caster.—A machine for casting type, used in mechanical composition.

Type-gage.—A strip of wood or metal, graduated in type sizes, and used for measuring the number of lines contained in a piece of matter.

Typography.—The art of printing from type. More particularly, type-setting, or the proper assembling and grouping of type units in a piece of type composition.

Vignette.—A **half-tone** plate whose edges gradually fade away until they become lost on the white surface of the paper. *See Half-tone.*

Wash Drawing.—A painting used as a substitute for a photograph. It is usually made by using paints ranging through all the tones of gray, from pure white to black.

Wax-engraving.—A method of obtaining printing-plates by first engraving on a wax-coated plate of copper, then building up the background and making an **electrotype** from the plate. *See page 19.*

Woodcut.—A printing-plate of wood, on which an image has been left in relief by cutting away the background. This process is not now in general use for book illustrations.

Wove Paper.—Paper that is free from the watermark lines which characterize a **laid paper.**

Wrong Font.—Any letter in printed matter which is not of the same size or **face** as the rest of the word in which it is found. *See page 38.*

Zinc-engraving.—A printing-plate made of zinc, the background of which has been etched away, leaving the design in relief.